

**Claims**

1. Avipoxvirus comprising in the viral genome a Vaccinia virus host range gene or a homologue of said host range gene, with the proviso that the host range gene is not the E3L gene if the avipoxvirus is a recombinant canarypoxvirus comprising in the viral genome the Vaccinia virus K3L gene as well as expression cassettes for HIV gag-pro, gp120/TM and a Nef/Pol poly-epitope string, respectively.
2. Avipoxvirus according to claim 1, wherein the Vaccinia virus host range gene is a host range gene for human cells.
3. Avipoxvirus according to anyone of claims 1 to 2, wherein the host range gene is selected from the Vaccinia virus genes E3L, C7L and K1L.
4. Avipoxvirus according to anyone of claims 1 to 3, selected from the group consisting of Fowlpoxvirus and Canarypoxvirus.
5. Avipoxvirus according to anyone of the claims 1 to 4 comprising in the viral genome at least one additional heterologous nucleic acid sequence.
6. Avipoxvirus according to claim 5, wherein the additional heterologous nucleic acid sequence is selected from a sequence coding for at least one antigen, antigenic epitope, and/or a therapeutic compound.
7. Pharmaceutical composition comprising the avipox virus according to anyone of claims 1 to 6 and a pharmaceutically acceptable carrier, diluent and/or additive.
8. Vaccine comprising the avipoxvirus according to anyone of claims 1 to 6.

9. The virus according to anyone of claims 1 to 6, the composition according to claim 7 or the vaccine according to claim 8 as drug for affecting, preferably inducing, an immunological response in a living animal, including a human.

5 10. Use of the virus according to anyone of the claims 1 to 6 for the preparation of a medicament or a vaccine.

11. Method for introducing a homologous and/or a heterologous nucleic acid sequence into target cells comprising the infection of the target cells with the  
10 virus according to claim 5 or 6.

12. Method for producing a peptide, protein and/or virus comprising the steps of infection of a host cell with the virus according to anyone of claims 1 to 6, cultivation of the infected host cell under suitable conditions, and isolation  
15 and/or enrichment of the peptide and/or protein expressed from the viral genome and/or of the virus produced by said host cell.

13. Method for affecting, preferably inducing an immunological response in a living animal body including a human comprising administering the virus  
20 according to anyone of the claims 1 to 6, the composition according to claim 7 or the vaccine according to claim 8 to the animal or human to be treated.

14. The method according to claim 13, wherein the animal is immuno-compromised.

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15. A cell containing the virus according to any of claims 1 to 6.

16. Method for obtaining the avipox virus according to anyone of claims 1 to 6 comprising the following steps:

30 - introducing an avipox virus genome that optionally comprises in the viral genome heterologous nucleic acids as defined in anyone of claims 5 to 6 and a DNA comprising a host range gene as defined in anyone of claims

1 to 3 into cells in which the virus is able to reproductively replicate, wherein the DNA is capable to specifically recombine with the genomic DNA of the avipoxvirus

- isolating/enriching virus particles comprising the host range gene in the viral genome from these cells.

17. Method for obtaining the avipoxvirus according to anyone of claims 5 to 6, comprising the following steps:

- introducing the genome of an avipoxvirus according to anyone of claims 1 to 4 and a DNA comprising the at least one additional heterologous sequence into cells in which the virus is able to reproductively replicate, wherein the DNA is capable to specifically recombine with the genomic DNA of the avipoxvirus
- isolating/enriching virus particles comprising the at least one additional heterologous sequence in the viral genome from these cells.

18. Cell, in particular an avian cell, infected with an avipoxvirus and a Vaccinia virus, wherein the Vaccinia virus comprises at least one Vaccinia host range gene or a homologue thereof in the viral genome.

19. Cell, in particular an avian cell, comprising a Vaccinia virus host range gene or a homologue of said host range gene, wherein the host range gene or the homologue of said host range gene is not part of a Vaccinia virus genome.

20. Cell according to anyone of claims 18 to 19, wherein the host range gene is a host range gene as defined in anyone of claims 2 to 3.

21. Cell according to anyone of claims 19 to 20, wherein the host range gene is integrated in the cellular genome.

22. Cell according to anyone of claims 19 to 20, wherein the host range gene is part of a non-integrated DNA.

23. Cell according to anyone of claims 19 to 22, infected with an avipoxvirus.

24. Cell according to claim 23, wherein the avipoxvirus is a recombinant  
5 avipoxvirus.

25. Cell according to anyone of claims 23 to 24, wherein the host range gene  
or the homologue of said host range gene is not part of the genome of the  
Avipoxvirus.

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26. Cell according to anyone of claims 15 and 18 to 25, wherein the cells allow  
the reproductive replication of the avipoxvirus

27. Use of a Vaccinia virus host range gene or an homologue thereof, in  
15 particular a host range gene as defined in anyone of claims 2 to 3 to increase  
the titer of avipoxviruses produced from avian cells after infection of said cells  
with said avipoxvirus, wherein the host range gene is expressed in said cells.

28. Method for increasing the titer of avipoxviruses by infecting cells as  
20 defined in anyone of claims 19 to 22 with said avipoxvirus or by cultivating  
cells as defined in anyone of claims 15, 18 and 23 to 25, wherein the cells are  
cells allowing the productive replication of the avipoxvirus.

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